

# Reduce then Recycle

## **INTRODUCTION**

*The purpose of this case study is to assist all types of organizations and businesses in establishing their own waste prevention and recycling program to prevent solid waste and save resources. This study describes waste prevention efforts undertaken at the California Integrated Waste Management Board (CIWMB) from February through October 1994. We explain how this effort started, specific waste prevention practices that were tried, and whether such practices were successful or not. We hope that you will be able to build from our experience.*

*In this report, "waste prevention", also called source reduction, refers to the elimination or reduction of material before it becomes waste and is either recycled or sent to a landfill. Waste prevention should be a key part of any effort to reduce waste, because waste that isn't created doesn't have to be collected, sorted, hauled away, or landfilled. Consequently, waste prevention provides opportunities to save both money and natural resources.*

*Waste prevention is generally accomplished by getting the maximum use of any material before it is recycled or thrown away. It includes replacing disposable materials with reusable materials, eliminating a particular item altogether, repairing or maintaining equipment so it lasts longer, and using electronic communications instead of paper.*

*We hope you find this information helpful and please do not hesitate to call us at (916) 255-INFO with new ideas or for assistance in implementing your own waste prevention program.*

*In-house Waste Prevention Committee*

## SUMMARY OF WASTE PREVENTION RESULTS

The CIWMB has reduced waste and saved resources through its waste prevention program. Below are highlights from the program's first nine months.

- White office paper use was reduced 25<sup>1</sup> percent by:
  - discouraging avoidable or excess copying and printing,
  - encouraging communications via electronic mail,
  - encouraging two-sided copying and printing,
  - making two-sided printing an automatic computer feature,
  - reducing the size of documents,
  - streamlining document review processes,
  - turning one-sided paper into scratch pads, and
  - pruning mailing lists.

These efforts are estimated to produce annual **savings** of:

- 364 cases (3640 reams or 1.8 million sheets) of white paper,
  - \$16,724 in reduced postage costs,
  - \$68,370 in photocopying costs,
  - \$5,500 in reduced printing costs, and
  - \$10,151 in reduced purchasing costs (paper and note pads).
- Paper coming into the CIWMB was reduced. Encouraging an outside agency to send fewer hard copies of its newsletter, by using e-mail and shared copies, resulted in the following annual savings:
    - 102-120 cases of white paper,
    - \$10,200-\$12,000 in printing costs based on 2¢ per page,
    - \$150 in postage based on a cost of 75¢ per newsletter for U.S. mail, and
    - undetermined amount of savings from not using interdepartmental mail.
  - Fewer new large envelopes are purchased because staff now use labels designed for reusing envelopes.
  - More staff are purchasing beverages in refillable containers at the CIWMB cafeteria.
  - Food waste has been reduced by using 15 worm composting boxes at the CIWMB's offices and cafeteria.
  - Overall waste reduction and resource conservation are promoted through e-mail tips and presentations at all-staff meetings.
  - More CIWMB staff participate in waste prevention activities and generate new ideas than before.



<sup>1</sup>

This does not include large reproduction orders which are handled by the CIWMB's copy center. Large volume copying used to be sent outside the CIWMB. Before new equipment was acquired, the copy center had a 31 percent decrease from February to March 1994. After purchasing new equipment in April 1994, the copy center started handling nearly all large volume copying and it is tracked separately.

## BACKGROUND

### Overall Organizational Mission and Structure

Every organization has a unique structure that impacts its operations. Below is a brief description of the CIWMB so you can better understand how our structure impacted program implementation and differs from yours.

The California Integrated Waste Management Board (CIWMB) is the lead state agency responsible for managing solid waste. Its mission is to protect public health and safety and the environment through waste prevention, waste diversion, and safe waste processing and disposal. Responsibilities include issuing permits for landfills and helping local governments meet the waste reduction mandates established by state law in the 1989 California Integrated Waste Management Act (AB 939). AB 939 requires that cities and counties reduce or divert their waste streams from landfills by 25 percent by the year 1995 and 50 percent by 2000.

The CIWMB has six politically-appointed members (Board) that set policy, and approve solid waste facility permits and planning documents. Each Board member has two advisors. In addition, there are about 380 civil service staff whose activities are supervised by an executive director. Staff activities include: inspecting landfills and reviewing local solid waste facility permits, providing technical assistance to local governments and the private sector on various waste reduction strategies, educating the public about solid waste issues, and developing markets for recycled goods.

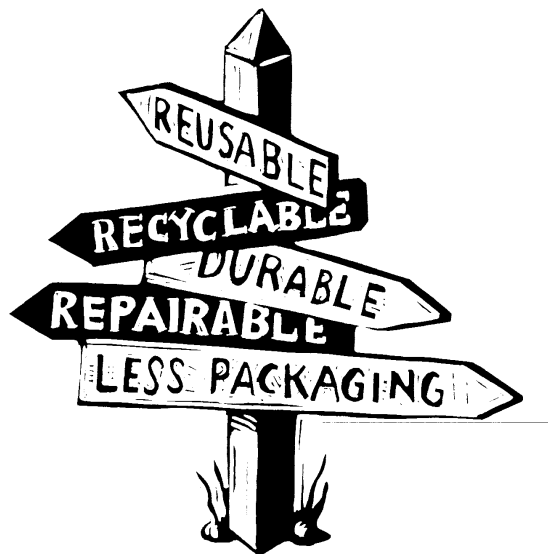
The CIWMB's headquarters is in a leased facility approximately 10 miles from downtown Sacramento, California. The grounds are

maintained by a contracted landscaping company.

### Waste Prevention Model Program

To most efficiently achieve the waste reduction goals of AB 939, the legislature established a hierarchy of waste reduction practices: 1) waste prevention, 2) recycling and composting, and 3) environmentally safe transformation and land disposal. Waste prevention is at the top of this hierarchy because if resources are used efficiently, and waste isn't created, it doesn't have to be disposed or recycled. Waste prevention can save money and resources.

Recognizing the importance of waste prevention in the hierarchy of waste reduction practices, the Board adopted a Statewide Waste Prevention Plan in May, 1993. One goal of this plan was to establish a formal In-house Waste Prevention Committee (Committee) to promote waste prevention at CIWMB's offices. This effort would also increase staff understanding of what businesses and other organizations face in their efforts to prevent waste. Our Committee was established in January 1994 to develop and implement a waste prevention program to reduce waste at the CIWMB and serve as a model for other public and private sector office settings.



### Waste Stream Audit

One of the first steps in establishing a waste prevention program is to conduct a waste audit or waste assessment. An audit identifies materials and items that are major contributors to the waste stream and are good targets for waste reduction. Because the CIWMB conducted waste audits in June 1990 and June

1992, we decided to use the results from those audits rather than conduct another audit.

Staff from the CIWMB's in-house recycling program conducted the two audits. For one week, staff collected waste from trash containers in individual work stations, common use areas, meeting rooms, bathrooms, cafeteria, and outside waste containers. Landscape

**During a waste assessment walk-through, ask:**

What type of work is done in this area?

What activities produce waste?

What type of waste is produced?

How are goods packaged? Is there excess packaging?

Are other discards usually generated at this location?

What waste has been or could be prevented?

waste was not included. The material was then sorted into the following major categories: paper, organics, plastics, glass, metals, other, and then weighed. The audit took approximately 60 personnel hours (6 staff working 10 hours each). (See Appendix A for results of the June 1992 audit.) This audit helped us decide what type of waste to focus on in our own waste prevention program.

Because of possible health and safety concerns, we recommend visual audits instead of the formal waste audit with trash sorts and weighing, described above. What's important is to have a good idea of the quantity of waste generated and how it is created. Conducting visual audits involves peeking into trash bins and making visual estimates of the quantity and types of waste generated. Visual audits should be combined with a walk-through of each work area to observe waste-generating activities. For more information on conducting waste audits call (916) 255-INFO.

## IMPLEMENTATION

### Getting started

Ultimately the success of any waste reduction program depends on the full support of management and participation by staff. Management sets a clear priority for waste reduction and sets a good example. Both management and staff can develop and implement waste prevention strategies.

### In-house Waste Prevention Committee

Developing a successful waste prevention program at the CIWMB followed a somewhat bumpy path. In late 1992, we attempted to form an in-house waste prevention committee. The first committee held one meeting in February 1993. Soon afterwards, the CIWMB underwent a major reorganization which shifted staff. Consequently, there was no follow up to that initial meeting.

After the Board adopted the Statewide Waste Prevention Plan, staff initiated a second committee in January 1994. A memo went out from upper management asking that each of the five division directors appoint a representative to the Committee which convened in February 1994.

At first, the Committee was small. There was some difficulty in getting appointments from each division and some appointees were not particularly interested in being on the Committee. To expand the Committee and allow highly interested staff to participate, all staff were invited to join. We ended up with a cross section of staff and managers representing each division. Also, an advisor to one Board member sits on the Committee; she has access to key decision makers and has been very helpful in moving projects through organizational channels.

During the first few months, we met two or three times a month. As time went on, fewer meetings were needed. We now meet about every three weeks and subcommittees meet as

needed to work on specific projects. Staff from the Waste Prevention Program Development section have lead roles on the Committee and their participation is part of their assigned duties. The chair sends detailed minutes of meetings to Committee members and the Waste Reduction Pros, whose duties are described below. There has been some turnover on the Committee, mostly from people leaving the CIWMB.

### **Connect to an existing recycling program**

Like many offices, the CIWMB had an in-house recycling program before starting a waste prevention program. This expedited our program's startup.

The recycling program was fairly extensive. It included nine types of material, including several grades of paper, aluminum, glass, and plastic. As part of this program, a recycling coordinator was designated, along with several "Recycle Pros." These individuals address implementation problems and encourage staff participation. Recycle Pros are essentially "block leaders" who serve a specific area. They are responsible for answering questions about recycling, and bringing problems to the attention of their respective supervisors, co-workers, and the recycling coordinator. They also attend periodic meetings to discuss their activities, problems, successes, and any program changes.

We asked the recycling coordinator and the Recycle Pros if they were willing to help promote waste prevention and they agreed. To acknowledge their expanded duties, these

volunteers were renamed "Waste Reduction Pros" (and are usually referred to as "Waste Pros"). The recycling program coordinator also became a Committee member.

In addition to improving the amount and quality of recycling, Waste Pros provide ideas and feedback on the acceptance and use of new waste prevention practices. They are always

asked for input on new waste prevention suggestions and are informed about all of the In-house Waste Prevention Committee meetings; some have even joined the Committee. They are a vital link to the overall success of the program. (See Appendix B for a duty statement.)

### **Develop an Action Plan**

Our first task was to create an In-house Waste Prevention Action Plan (Plan). This Plan (available upon request) established criteria for targeting materials, designated priorities, and identified goals and implementation steps for reducing each targeted material.

#### **A plan should state:**

What you aim to accomplish and why

Who is responsible

When a task should be completed

The criteria for selecting and prioritizing materials were based on: potential for reducing the waste stream, ease of implementation, and ability to support other waste prevention efforts underway. In order of priority, we decided to focus on: 1) paper waste, 2) food related waste, 3) landscape building management, 4) procurement practices, and 5) other resources.

Reflecting these priorities, the goals of the Plan were:

- Goal 1: Request that the board adopt the In-House Waste Prevention Resolution.
- Goal 2: Implement a 10 percent reduction in white office paper use.
- Goal 3: Encourage staff to reduce food and related waste.
- Goal 4: Actively work with building management to reduce waste.
- Goal 5: Implement waste prevention practices in procurement.

- Goal 6: Persuade CIWMB employees to conserve other resources.

Each goal was followed by several specific implementation steps. The Plan is a working document, so the goals and implementation steps are adjusted as we try various waste prevention strategies and come up with new ideas. Our basic approach is to try out each new waste prevention practice in one area as a pilot, if it works well, then it is expanded or adopted Boardwide. Practices that don't work well are dropped.

## Support from the top

To obtain management support, we asked the Board to adopt the CIWMB Waste Prevention Policy (Policy) and In-house Waste Prevention Action Plan (Plan) at their February 1994 meeting. The Policy, included in Appendix C, made specific commitments, such as a ten percent reduction in paper purchases. The Board adopted the Plan and the Policy and directed the Executive Director to implement the plan.

To ensure speedy adoption of the Policy and Plan, we timed the request for the Board's approval to coincide with an already scheduled Waste Prevention Awareness Week. This created a self-imposed deadline which ensured that the Policy and Plan moved forward quickly.

## Kickoff

To bring waste prevention to the attention of all employees, we designed an educational kickoff to demonstrate support from top management and across the CIWMB. For the kickoff, we created an educational quiz with ten short questions and distributed it on e-mail. Those who had the best scores were entered into a drawing. Board members and executive staff donated prizes for the drawing that represented some form of waste prevention (e.g., a quality used or reusable item).

The kickoff occurred at a well attended all-staff meeting. Several Committee members made short presentations (e.g., to report quiz results and winners, explain the plan and next steps, introduce Waste Pros). This demonstrated that waste prevention is everyone's responsibility throughout the CIWMB, not just in one unit.

## ONGOING EDUCATION AND PROMOTION

### Tips

As a way to keep waste prevention in everyone's mind and pass on new ideas, we regularly

**Distribute tips  
one at a time  
so they are  
easier to  
remember.**

send out tips over e-mail and this works well. All CIWMB staff are connected through a computer network so sending out tips requires no paper.

Based on a random survey, 65 percent of staff read tips all of the

time, 27 percent read them most of the time, and 65 percent find them helpful.

If the e-mail were not available, other waste-preventing means of distributing the tips could be used, such as circulating the tips or posting them by photocopiers or in other locations.

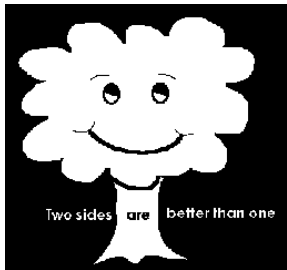
(See Appendix D for a few sample tips; copies are available by calling 916-255-INFO).

Ideas for tips come from several sources, including Committee members, other staff, and outside sources. At first Committee members drafted tips, but after a few months other staff joined in the effort. The tips are usually directed at work-related waste prevention, but a few have been ideas for preventing waste at home.

Adequate review is important. All tips are sent out in draft form for review by the Committee and Waste Pros. Depending on the topic, they may be sent to staff with certain expertise (e.g., computer support services would review computer-related tips). Some tips change significantly during review and others are

dropped altogether. We try to keep the tips concise, but with enough detail to be self-explanatory.

## Visual Reminders



To remind people to prevent waste when they can do something about it (like at a photo-copier), we put up reminders at copiers and printers. A Committee member designed a logo

which was used in the first wave of reminders. We learned that to be effective, visual reminders must be changed so that they continue to attract attention. To generate new artwork and slogans, we enlisted our Graphics Unit and solicited ideas from staff. We also use logos, slogans, and graphic designs from other programs. All of the CIWMB's artwork, slogans, and logos are available for use by others (see samples throughout this document, for copies call 916-255-INFO).

## Awards

Well placed recognition can be a good motivator. To maintain ongoing interest in waste prevention and recognize outstanding efforts, we distribute awards at all-staff meetings. The awards are for "Outstanding Waste Prevention," given to the floor with the greatest reduction in paper use (see tracking, below). "Waste Reduction Champion of the Month," and "Creative Reuse" are given to individuals for developing or implementing new waste prevention strategies.

**Documenting success is essential for gaining long term support**

Each recipient receives a reusable trophy, which he or she has until the award is given to someone else, and a certificate to keep. The trophies themselves are reused, having been purchased at garage sales and donated to the program.

One challenge is collecting information on outstanding efforts and keeping the award a surprise. Some months pass without any awards if we are unable to find good examples to highlight.

## PAPER REDUCTION

### Tracking in-house paper use

Tracking may be a bit time consuming, but it is essential for documenting success and gaining long term support. We track paper by recording paper deliveries and comparing that information to monthly changes in inventory (a sample tracking sheet is included in Appendix E). We decided to track paper use by floor rather than division because there are no division-specific copiers and staff use the closest working copier, which is sometimes in another division, yet usually on the same floor.

We established a baseline for making comparisons before and after the program kickoff. Ideally, we should have gathered data for at least three months for our baseline. However, to avoid delays in starting the program, we used only one month's data. Given that major printing jobs are done outside the CIWMB or in a copy center that is tracked separately, we didn't expect one month to fluctuate widely from another. In 1995, we will check purchasing records from previous years and compare them to the current year to validate our measures.

Excluding the CIWMB's copy center, paper use tracked in the first six months of the program indicate a 31 percent reduction in use. In February, the CIWMB used 19.9 reams of paper per day; by October this had decreased to 13.8 reams per day. Floor-by-floor inventories show fluctuations, but there has been a general downward trend in paper use on all floors. The copy center has not been included in this comparison because of equipment changes that occurred in April. As a result of these changes, large copy orders that used to be sent outside the CIWMB are now done in house. However, the copy center did have a

31 percent reduction in paper use before the new equipment arrived.

We report the results of the monthly tracking to all staff on e-mail. The e-mail memos show average daily paper use for the entire CIWMB and average daily paper use per employee by floor. Paper is being tracked monthly during the first year to help us understand if our approaches work. Quarterly tracking is planned for the second year.

### **Tracking use of both sides of paper**

We also wanted to track the amount of white letter-sized paper being used on both sides because we were encouraging staff to print and copy double-sided and use scratch paper. A student assistant collected samples monthly, from the CIWMB's white paper recycling containers. We calculated the percentages of single- versus double-sided pages for each floor (the same as for paper generation, described above). According to these initial surveys, double-sided rates increased an average of 17 percent, from 29 percent in February to 46 percent in October.

This initial sampling was not done scientifically and the error factor may be

large. We now have a more scientific sampling procedure where 100 pages are taken from the white paper recycling bins for each floor; this results in a 10 percent error factor which we have agreed is acceptable. A smaller error factor (5 percent), would require a sample size of four times the amount currently collected, requiring too much staff time for our organization.

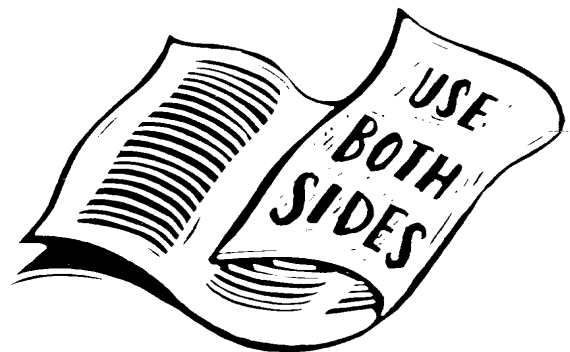
### **Double-sided copying**

Like most offices, paper is the largest component of the CIWMB's waste stream and the first material we focused on. We needed to identify a number of ways to reduce paper use. Random surveys of the white paper recycling containers throughout the CIWMB revealed that most paper was only used on one side. We decided to encourage two-sided copying to

reduce paper use. This also creates thinner documents, reducing postage (about 3.5¢ per page) and storage space.

We didn't try to measure changes in the amount of staff time needed to copy documents two-sided, although we know it takes more time, depending on the copier. We concluded that any increase in time is likely to be small as short copy jobs will take an insignificant amount of additional time and longer jobs will be left at the copier while staff engage in other tasks. Also, when time is a critical factor, staff simply print single-sided.

We sent out tips and put reminders at the photocopiers to encourage two sided copying. Recognizing that some copiers frequently jam



when making two-sided copies, we devised short- and long-term strategies. In the short-term, we labeled copiers so staff would know which ones could do two-sided copying reliably.

Copiers that performed properly were labeled with a "happy tree" logo; poorly functioning copiers got a flyer with a "sad tree" logo that directed people to a more reliable copier. The Waste Pros decided which copiers performed reliably and which did not. This helped decrease frustration of staff trying to print two-sided copies.

As a long term strategy, we want to replace poorly performing copiers with more reliable ones. Currently, the copier vendor is required to replace machines if downtime exceeds 15 percent (about three days a month) for two consecutive months. We posted check sheets at each copier so paper jams could be recorded; these records were turned in to the purchas-



ing division (Business Services) to justify purchasing better copiers. We encouraged staff to report any copier malfunctions as soon as they occurred so that accurate downtime records could be kept (also as justification to get better copiers). We learned that downtime was only counted after a repair person had been called. Many staff would simply note that a copier was not functioning and go elsewhere.

As a result, when a copier repair person was finally called, the recorded downtime was much shorter than actual downtime.

To learn about copier testing, standards and replacement, we met with the Department of General Services (DGS), which handles state agency purchases of large items like copiers. At this meeting, DGS representatives indicated that most copier problems are the result of improper servicing or operator error. We learned our method of tracking copier problems did not provide the necessary information to determine downtime. Required documentation includes: reason for the service call, when service vendors were called, when vendors arrived to complete repairs, when they finished the repairs, and what was done. The CIWMB's Business Services Office agreed to set up a tracking system as recommended by DGS.

We also asked DGS about increasing copier uptime specified in contracts as a way of improving reliability. The DGS representatives said it would be extremely difficult to seek an uptime higher than the current 85 percent (i.e., a downtime of less than 15 percent) because vendors would not bid on such contracts. We are collecting information about uptimes or downtimes specified in contracts in other organizations and we have found uptime examples of 90 percent. Later we plan to present this data to DGS.



Despite copiers problems, the rate of two-sided copying seems to have slightly increased. In a random survey, 35 percent of staff said they make two-sided copies more frequently than a year ago, 43 percent reported no change and 22 percent do less two-sided copying because they are having more difficulty with copiers (also see above discussion under 'Tracking use of both sides of paper').

### **Double-sided printing**

We encouraged two-sided printing by posting reminders near computer printers, sending out tips on e-mail, and changing the computer defaults. These approaches seemed to have worked well. A random survey of CIWMB staff indicate that 67 percent have increased their frequency of double-sided printing and 33 percent reported no change. Of those reporting no change, a third of them were already printing double-sided as frequently as possible.

To promote double-sided printing we started by developing tips on how to set up documents to automatically print two-sided. Then we realized that a better long-term solution would be to change the defaults in software programs through the CIWMB's computer network so documents automatically print two-sided unless the user specifies otherwise.

To accomplish this, we asked the Information Management Branch (IMB) which is in charge of the computer network, to make the changes.

IMB staff responded that they would like to help, but felt that they could not proceed without an executive directive.

Top management approved our request to change the computer defaults. This was a positive message in support of our effort to prevent waste.

### **E-mail messages**

E-mail saves paper as long as people do not print out their messages. We developed tips and sent out detailed instructions encouraging people to save their messages in the computer rather than printing them out and, if printing was absolutely necessary, to print out multiple messages on a page. Also, the e-mail software was among those changed to default to two-sided printing.

### **Streamlining review and approval process**

Two Branches of the CIWMB, working together, developed a proposal to significantly decrease paper use by streamlining the process used to give public notice on Planning Reports. The CIWMB is required to review several types of documents from each of California's 531 cities and counties and these are widely distributed for public review. The proposal, adopted by the Board, called for condensing these lengthy staff reports. This will result in saving over a million sheets of paper! Savings estimates are<sup>2</sup>:

- \$7686 in paper (256 cases of paper)
- \$14,496 in postage
- \$64,050 in photocopying expenses (machine, maintenance, labor)

### **Reduce size of documents**

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<sup>2</sup> See Appendix G for information on values used to calculate these savings.

Each month as part of a public review process, documents are prepared and attached to agendas for committee and Board meetings.

These agendas and their attachments are then widely distributed.

Before the Permitting and Enforcement Division attached several twenty page documents to the Permitting and Enforcement Committee agenda and then attach the same documents to the Board meeting agenda. Now the attachments are only attached to the Committee meeting agendas; the Board

meeting agenda simply refers readers to the Committee agenda packets. This saves about 100 pages in each Board meeting agenda packet that is distributed to 72 individuals. Annually this saves about 86,400 sheets of paper, for cost savings of:

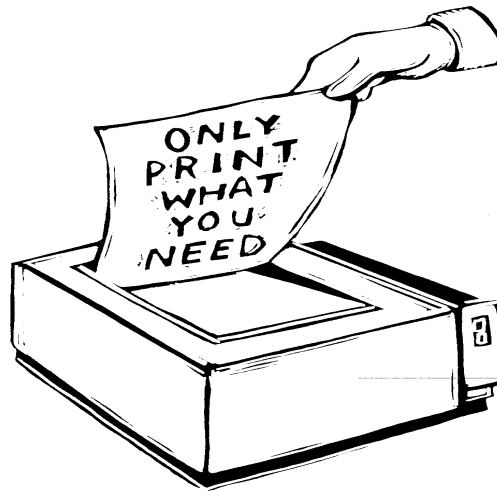
- \$518 in paper costs
- \$1,974 in postage costs
- \$4320 in photocopying expenses (machine, maintenance, labor)

### **Annual report printing reduction**

Staff responsible for developing the CIWMB's Annual Report noticed extra copies at the end of the year. They determined the minimum number of hard copies needed for the legislature and interested parties. To further reduce the need for hard copies, staff offered the annual report on diskette. In 1994, the CIWMB printed 1000 fewer copies of the annual report than in the previous year. Of 950 annual report recipients surveyed, 200 opted to receive the report on diskette rather than hard copy.

Estimated annual savings are:

- 28.4 cases of paper (cost savings is included in printing cost)
- \$5,500 in printing costs
- \$254 in postage\*



\*This is the minimum postage savings from mailing 200 diskettes instead of 200 hard copies. The actual postage savings is probably higher because the mailing list was reduced by about 350. Each hard copy of the report costs \$1.79 to mail, so if the mailing list was reduced by 350, the additional savings would be about \$627.

## Reducing newsletter copies

Cal/EPA is the umbrella agency that oversees the CIWMB and several other State environmental Boards and Departments. The Cal/EPA Report (Report) is its monthly newsletter (about 25 pages) distributed to employees, government officials, environmental groups, corporations, and other interested parties by Cal/EPA. Before implementing steps to curtail excessive printing and mailing, its total circulation was 9,300--of this 5000 was external and 4,300 internal.

To reduce the number of Report copies needed at the CIWMB, we arranged for copies to be routed and shared among several staff. We surveyed managers to determine how many copies were needed for routing, rather than sending a copy to each employee, and then asked the editor of the Report to send this reduced number. The editor was very eager to help out and began evaluating the Report's readership and distribution. She asked other agencies how many copies were being tossed away, unread, or mailed to duplicate addresses.

Other boards and departments were also willing to route copies, which allowed for a 40 percent decrease--from 4,300 copies to 2,615. The Report editor also purged the external mailing list. Recipients were sent a full page mailer and asked to verify that they still want to receive the Report. This is expected to eliminate 200 to 300 copies. Total estimated annual savings are:

- 102 -- 120 cases of white paper (cost savings are included in printing costs)
- \$10,200 -- \$12,000 in printing costs based on 2¢ per page
- \$150 in postage based on a cost of 75¢ per newsletter and an undetermined amount of saved resources from not using interdepartmental mail



Following implementation of these new procedures, the editor took another job.

Unfortunately the procedures were not conveyed to the next person and we began getting hard copies of the newsletter for each staff person. We contacted Cal/EPA and encouraged them to systematize these procedures so that they would survive future staff changes.

## Single-sided paper reuse

In order to make use of paper which was not copied or printed on both sides, we began collecting single-sided paper in March. We placed collection boxes near copiers, printers, and fax machines. We then asked staff to place paper (8 1/2" X 11") that is clean on one side, without tape, staples, or wrinkles in these boxes. We reuse this paper in a variety of ways:

- as draft paper in some fax machines (since faxes are one-sided)
- in some copiers (where an extra tray was available for draft paper)
- as scratch pads, tablets and sheets for planning calendars or day planners

### A. Fax Pilots

One Committee member started a pilot using draft paper in her area's fax machines; shortly after this other pilots were started. The pilots met with some resistance at first, but over time

were accepted, although there continues to be occasional problems. Also there were initial complaints from staff who were confused about having text on both sides of the paper (and being unable to tell which was the new original).

To alleviate this, we temporarily crossed out the back side of draft paper. A couple of complaints have been received since, but it does not appear to be a major concern.

There continue to be some problems with people loading paper in the wrong direction (so that the fax is printed on the used side of the paper instead of the clean side). To address this problem, Waste Pros are now responsible for filling the fax machines and training others to load paper correctly. Even with this change, we continued to have problems at one fax machine and discontinued the pilot at this machine only.

## **B. Copier Pilots**

Using draft paper in the copiers had been practiced sporadically by individuals who put draft paper into a copier tray and then removed it when they were through. A Waste Pro started a pilot by designating one of the trays in a multi-tray copier for draft paper only. He posted detailed instructions for using the draft paper near the copier and e-mailed it to those most likely to use this copier. This pilot operated without problems but did not have high use, probably due to placement of the paper in a landscape (11" X 8 1/2") rather than the standard portrait (8 1/2" X 11") tray.

After the first pilot had operated successfully for about three months, another pilot was started in a different unit. Although detailed notices were sent out and posted for this pilot, some people did not read them and got draft copies when they did not want them. There have also been problems with people putting the paper in the copier with the wrong side up.

## **C. Scratch pads**

A total of 16 cases (approximately 160 reams) of used paper were collected at the CIWMB from March through October. This paper was sent, in three separate orders (June, October, November) to the Department of General Services to be cut and bound into scratch pads.

The first order was for four sizes of scratch pads: full size, half size, quarter size and eighth size. The total cost of these pads was \$210. Had the CIWMB bought pads in these sizes, it would have cost \$600, resulting in a total savings of \$390. It was subsequently decided that the eighth-size pads were too small and not cost effective, so these were discontinued.

Feedback from CIWMB staff on the scratch pads is very positive. It was suggested that scratch pages also be made for the reusable day planners. These were included in subsequent orders.

## **Mailing lists**

The CIWMB established a Task Force to look for ways to centralize mailing lists, eliminate duplicate names, and delete names of people who no longer want to be on a mailing list. We commented on a proposal prepared by the Mailing List Task Force for managing the CIWMB's numerous mailing lists. The Task Force looked for ways to centralize mailing lists and reduce their size by eliminating duplicate names and deleting names of people who no longer want to be on a mailing list. This will allow individuals on the mailing list to get one copy of information they want. The short-term option is to send people on the CIWMB's mailing lists a card which they must send back indicating that they still want to be on the mailing list; if the card is not returned, the person's name is deleted. The long term strategy calls for a centralized mailing list which should help keep the mailing list up to date. Staff will be able to access it through the computer network.

As part of the mailing list proposal, we suggested that addresses be directly printed onto envelopes eliminating the need for labels. This eliminates labels that are a common contaminant when recycling paper.



## Envelope Reuse

To encourage staff to reuse large envelopes, we designed and printed labels. Staff address these labels and place them on top of the old address. The labels have the CIWMB's return address and a line for more specific return address information (like section names, mail stations, etc.) The old return address and postage are crossed out, as is any remaining part of the old address. We are distributing ten thousand labels, about 25 per employee, as a pilot. Initial feedback has been positive and the labels seem to work well, although we have had to remind employees that they should only be applied to used envelopes, not new ones.

## FOOD RELATED WASTE

### Food and other waste survey

The June 1992 waste audit indicated that a significant portion of the CIWMB's waste stream was food-related waste, mostly packaging. To get more current information, we conducted a random survey of 42 CIWMB staff; 38 responded. The survey provided information about their eating habits and the kinds of waste staff were still generating even after recycling. The major items being thrown away were (in order of frequency) food wrappers, envelopes,

leftover food, mixed paper, and beverage containers. (See Appendix F for a copy of the survey.)

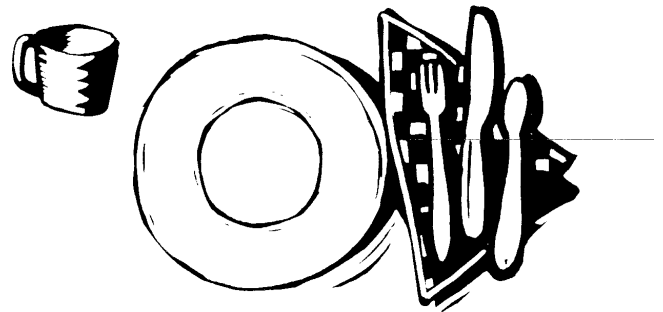
### Reducing waste from food packaging

According to the survey, staff ate lunch out two times a week on average, mostly at local fast food restaurants. To gather more data about fast food waste, we collected a month's worth of waste generated by one person eating out at local fast food restaurants (waste from packaging, napkins, utensils etc.) This waste was put into a large plastic bag and then used in an all-staff presentation to emphasize how much garbage is produced from fast food lunches.

We have followed up on reducing fast food waste by finding out which fast food restaurants allow customers to bring reusable cups and offer discounts. We sent this information out to staff as a tip. We are also meeting with management of local fast food restaurants to see if there are ways they might further reduce waste. The two restaurants approached so far say they will give a 10 percent discount to customers who bring their own containers for takeout food.

### Reducing food waste

An efficient, low cost way to reduce food waste is through worm bins. What are Worm Bins?



They are just that, bins that contain worms. A few worm bins have been at the Board for several years without problems. To help reduce food waste, an agency-wide pilot worm-composting project was started. For the pilot, each Waste Pro was given a covered plastic bin

which is 21 inches long, 15 inches wide and 12 inches high. We put moistened, shredded newspaper into the bins for initial bedding and approximately 750 red worms. The Waste Reduction Pros feed the worms nonmeat and nondairy food scraps generated by their fellow employees. The worms, in turn, produce manure (also called castings) which is a high grade fertilizer. This material will be given to the landscape company to use on landscaping.

Waste Pros track the time needed to maintain the bins, and they track the quantity and type of food being fed. Of the 15 boxes, only 3 have reported any problems. Two of these boxes were overfed. The result was a slight odor when the boxes were opened and gnats, which were already present in nearby potted plants. These boxes were put on a "diet" and placed outside on a balcony until the gnats were gone.

The third box was underfed causing a serious decline in



worms. We added some worms and feeding was gradually increased until the worm population stabilized.

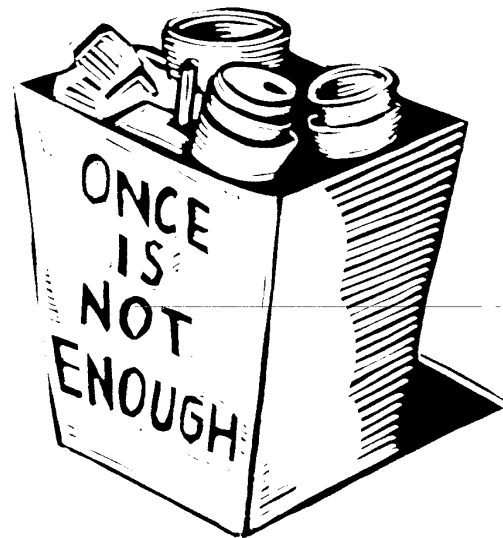
In spring 1995 we will document the best management methods for worm bins based on our 6-month pilot. If there are no unforeseen problems, and it is determined that more bins are needed to handle staff's food waste, more bins may be placed. The final goal is to have enough worm boxes to consume all CIWMB-generated food waste.

In addition to small office bins, we recently placed a large outdoor worm box outside of the CIWMB's cafeteria. The building property manager approved the outdoor box (4' x 2' x 1.5') and the cafeteria management agreed to put their food scraps in the bin once it was set up. (Before an employee occasionally collected cafeteria food scraps for his home composting operation.)

The outdoor worm bin is an attractive box made from dark brown recycled plastic lumber. During the start up phase of this worm box, we are closely monitoring the worms to assure that they get a balanced diet (not too many coffee grounds) and are not overfed. Later we will train cafeteria staff on how to put their food scraps in the worm box.

## Promoting reusable cups

One of the findings of the survey was that while a large portion of staff used reusable coffee mugs, most did not use reusable cold drink cups. The cafeteria already offered a 10 cent discount to people bringing their own cups, although many people did not know about it. Cafeteria management also said they had a problem with reusable cups because they could not always determine the size and did not know what to charge.



To address this problem and to promote reusable cups, we worked with cafeteria management on a promotional event -- a root beer float day. The first 70 people to buy a float received a free 32-ounce cup (the cups were seconds, donated by a local company). As part of the event, people could also get their reusable coffee or cold drink cup measured and marked. Over 70 people brought their cups to be measured.



We conducted a follow-up survey to determine whether staff have increased their use of reusable mugs or cups.

Before the event, 21 percent of staff reported that they purchase cold drinks, but never brought a refillable cup, now 7 percent always bring a refillable cup and another 7 percent bring one occasionally. There was also about a 7 per-

cent increase in the number of staff bringing their own hot cup for refills.

The cafeteria has indicated that there continue to be problems determining the size of cups. To help remedy this, we are looking into purchasing labels to better mark the size of cups.

## LANDSCAPING

Landscaping around the CIWMB's offices includes grass around the parking lot, building perimeters, at the parking lot entrance, and between buildings. There are also flower beds with seasonal plants. Although a portion of the yard waste is taken to local composters by the landscape company, much of it ends up in the landfill.

At the end of August 1994, we met with the building's property management company and their contracted landscape maintenance company to discuss several possibilities for reducing yard waste. The property manager and landscape company agreed to consider reducing waste generated from replacing annual flowers and mowing grass.

## Waste from annuals

Although most of the flower beds at the CIWMB are planted with perennial plants that are not removed, annuals and some perennials are planted in many beds to provide color. Currently, landscape crews remove and replace these plants three times a year. The removed plants become part of the general yard waste, most of which is landfilled.

As a short-term strategy, the landscaping company agreed to notify staff before removing plants. Staff who want to take the removed plants home are welcome to do so. Previously, a few staff had taken these plants informally. By giving people advance notice, it was assumed that more people would take plants. Despite notification, few took plants home in October. A follow-up survey indicated that 61 percent of staff are interested in taking home these plants. Suggestions included better notification of plant removal, more time for picking them up, and a place to store them during the day.

As a long-term strategy for dealing with seasonal plantings, we suggested that they be



replaced with permanent plantings. The property management and landscape company said that they would not eliminate all seasonal plants, but would consider reducing their number. In fact, the landscaper indicated they had already reduced seasonal plantings since they began managing the building's landscape.

The landscaper agreed to create a design for a permanent perennial bed between the buildings and submit it to the property management company.

## Grasscycling



One of the CIWMB's projects is statewide promotion of grasscycling, the practice of leaving grass clippings on the lawn where they naturally and quickly decompose. One of grasscycling's most appealing benefits is that it reduces the time it takes to mow

because clippings do not have to be bagged or hauled away. In Spring 1993, staff began working with the property management and



landscaper to set up a model grasscycling program at the CIWMB offices. It took several months to set up a pilot on a portion of the lawn. The landscaper was supposed to report back to staff on the results, but did not. At the August 1994 meeting, the landscape company agreed to another, better monitored pilot to start in the spring of 1995.

## FUTURE DIRECTIONS & CONCLUSIONS

Waste prevention pays. In its first nine months, the CIWMB's In-house Waste Prevention Committee has met the first two of the six goals established in its Action Plan, saving resources and money. The Board adopted an agency-wide waste prevention policy (Goal 1). Office paper usage has been reduced by over 10 percent (Goal 2), although we are still implementing paper saving practices. Progress has also been made on Goal 3 (reducing food waste) and Goal 4 (reducing waste from building operations). In the coming months, we expect to start work on Goal 5, procurement practices, and Goal 6, conserving other materials, such as newspaper and mixed paper.

Like recycling, waste prevention often involves behavioral changes, so continual effort is needed to remind staff to prevent waste. To the greatest extent possible, we tried to implement system changes (like setting computers to default to two-sided printing) as these types of changes require less ongoing monitoring and education.

Based on the first six months of activity, we know that waste prevention can be achieved and in many cases, can save taxpayers' money, but it does require effort. Setting up a waste prevention committee and implementing waste prevention practices requires several staff that can devote a few hours each week to the effort, especially in the beginning. Strong support from senior managers and access to them is extremely important for overall success. Even though it requires extra effort, in terms of labor, all our waste prevention activities are integrated into existing workloads and there has been no increase in labor costs, i.e., there have been no payroll changes as a result of the waste prevention programs.

We hope that some of the ideas presented in this case study will help you and other organizations identify ways to reduce waste and successfully implement your own waste prevention programs. We realize that we don't have all the answers and are continuously seeking new ideas. If your organization needs any assistance in implementing a waste prevention



program or if you have ideas that may help us and other organizations, please contact the Waste Prevention Info Exchange at 916-255-INFO. Together we can all make a difference!

